

# VICTREX FG™ 300 Series



## Product Description

High performance Food Grade thermoplastic material, unreinforced and reinforced **PolyEtherEtherKetone** (PEEK), semi crystalline, granules for injection moulding and extrusion, colour natural/beige and black.

## Regulatory

Food Contact compliance for EU 10/2011 (FG300 & FG325), FDA 21CFR 177.2415 (FG300, FG320, FG325 & FG340), China (FG300 & FG325) and South America (FG300 & FG325).

Drinking water compliance to WRAS (UK).

## Typical Application Areas

The VICTREX FG™ 300 family of materials is intended for applications needing WEAR resistance: wear and abrasion resistance for bearing and wear service and low coefficient of thermal expansion for metal replacement. Chemically resistant to aggressive environments, suitable for sterilisation for food contact applications.

MATERIAL PROPERTIES							
	CONDITIONS	TEST METHOD	UNITS	FG300	FG320	FG325	FG340
Tribological Data							
Wear Rate	Pad-on-Ring, 2MPa, 7.5m/s	ASTM G176	mm <sup>3</sup> /Nm x10 <sup>-6</sup>		1.8		0.4
Coefficient of Friction					0.36		0.10
Shore D hardness	23°C	ISO 868		84	83	81	85
Mechanical Data							
Tensile Strength	@yield, 23°C	ISO 527	MPa	95		78	
	@break, 23°C				150		195
Tensile Elongation	@break, 23°C	ISO 527	%	60	2.3	25	1.9
Flexural Strength	@yield, 23°C	ISO 178	MPa	155		125	
	@break, 23°C				230		290
	125°C			85	160	70	220
	175°C			16	80	18	140
Flexural Modulus	23°C	ISO 178	GPa	3.6	11.5	3.2	17
Compressive Strength	23°C	ISO 604	MPa	120	170	105	250
	120°C			65	110	65	175
Thermal Data							
Melting Point		ISO 11357	°C	343	343	343	343
Glass Transition (Tg)	Onset	ISO 11357	°C	143	143	143	143
	Midpoint			150	150	150	147
Coefficient of Thermal Expansion	Along flow below Tg	ISO 11359	ppm K <sup>-1</sup>	45	15	40	9
	Average below Tg			65	45	60	35
	Along flow above Tg			125	20	120	10
	Average above Tg			160	115	140	85
Heat Deflection Temperature	1.8 MPa	ISO 75A-f	°C	152	315	150	343
Thermal Conductivity	Average, 23°C	ISO 22007-4	W m <sup>-1</sup> K <sup>-1</sup>	0.29	0.85		1.3
Miscellaneous							
Density	Crystalline	ISO 1183	g cm <sup>-3</sup>	1.30	1.45	1.40	1.44
Water Absorption by immersion	Saturation, 23°C	ISO 62-1	%	0.45	0.35	0.45	0.3
	Saturation, 100°C			0.55	0.45	0.55	0.6
Electrical Properties							
Volume Resistivity	23°C	IEC 60093	Ω cm	10 <sup>16</sup>	10 <sup>10*</sup>	10 <sup>16</sup>	10 <sup>6*</sup>
Dielectric Strength	2mm thickness	IEC 60243-1	kV mm <sup>-1</sup>	23	-	26	-

\*This property provided for informational purposes only – resistivity is not controlled

Typical Processing							
Conditions		FG300	FG320	FG325	FG340		
Drying Temperature / Time		150°C / 3h or 120°C / 5h (residual moisture <0.02%)					
Temperature settings		375 / 380 / 385 / 390 / 395°C (Nozzle)	365 / 370 / 375 / 380 / 385°C (Nozzle)	355 / 360 365 / 370 / 375°C (Nozzle)	370 / 375 / 380 / 385 / 390°C (Nozzle)		
Hopper Temperature		Not greater than 100°C					
Mould Temperature		170°C - 200°C (max 250°C)	170°C - 200°C (max 250°C)	170°C - 200°C (max 250°C)	180°C - 210°C (max 250°C)		
Runner		Die / nozzle >3mm, manifold >3.5mm					
Gate		>1mm or 0.5 x part thickness	>2mm or 0.5 x part thickness	>2mm or 0.5 x part thickness	>2mm or 0.5 x part thickness		
Mould Shrinkage + Spiral Flow							
Conditions		Method	Units	FG300	FG320	FG325	FG340
Nozzle Temperature			°C	395	385	375	390
Tool temperature			°C	180	200	180	200
Spiral Flow	1mm thick section	Victrex	mm	125	80	130	135
	3mm thick section	Victrex	mm	630	380		
Mould Shrinkage	Along flow	ISO 294-4	%	0.9	0.3	1.2	0.0
	Across flow			1.3	0.7	1.7	0.5

**Important notes:**

- Processing conditions quoted in our datasheets are typical of those used in our processing laboratories
  - Data for mould shrinkage should be used for material comparison. Actual mould shrinkage values are highly dependent on part geometry, mould configuration, and processing conditions.
  - Mould shrinkage differs for along flow and across flow directions. "Along flow" direction is taken as the direction the molten material is travelling when it exits the gate and enters the mould.
  - Mould shrinkage is expressed as a percent change in dimension of a specimen in relation to mould dimensions.
- Data are generated in accordance with prevailing national, international and internal standards, and should be used for material comparison. Actual property values are highly dependent on part geometry, mould configuration and processing conditions. Properties may also differ for along flow and across flow directions.



Victrex plc and/or its group companies ("Victrex plc") believes that the information contained in this document is an accurate description of the typical characteristics and/or uses of the product or products, but it is the customer's responsibility to thoroughly test the product in each specific application to determine its performance, efficacy, and safety for each end-use product, device or other application. Suggestions of uses should not be taken as inducements to infringe any particular patent. The information and data contained herein are based on information we believe reliable. Mention of a product in this document is not a guarantee of availability. Victrex plc reserves the right to modify products, specifications and/or packaging as part of a continuous program of product development. Victrex plc makes no warranties, express or implied, including, without limitation, a warranty of fitness for a particular purpose or of intellectual property non-infringement, including, but not limited to patent non-infringement, which are expressly disclaimed, whether express or implied, in fact or by law. Further, Victrex plc makes no warranty to your customers or agents, and has not authorized anyone to make any representation or warranty other than as provided above. Victrex plc shall in no event be liable for any general, indirect, special, consequential, punitive, incidental or similar damages, including without limitation, damages for harm to business, lost profits or lost savings, even if Victrex has been advised of the possibility of such damages regardless of the form of action. VICTREX™, APTIV™, VICOTE™, VICTREX PIPES™, VICTREX HT™, VICTREX ST™, VICTREX WG™, PEEK-ESD™ and the Triangle (Device), are trademarks of Victrex plc or its group companies.